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EXAMINER
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WEI, ZHENG

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12/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/657,463

Applicant(s)

GADRE, MAKARAND

Examiner

Zheng Wei

Art Unit

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/15/07, 10/12/07</u>  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Remarks***

1. This office action is in response to the amendment filed on 10/12/2007.
2. Claim 10 has been canceled.
3. Claims 1, 2, 7, 11-13, 18, 25, 26, 28, 29, 31, 36, 40, 42 and 51 have been amended.
4. The objection to the specification is withdrawn in view of applicant submitted amendment.
5. The 35 U.S.C. 101 rejection to claim 25-30 is withdrawn in view of the Applicant's amendment.
6. Claims 1-9 and 11-54 remain pending and have been examined.

***Information Disclosure Statement***

7. The information disclosure statements filed on 05/15/2007 and 10/12/2007 have been placed in the application file and the information referred to therein has already been considered.

***Response to Arguments/Amendments***

8. Applicant's amendment filed on 10/12/2007, changed the scope of independent claims 1, 13, 18, 25, 31, 36, 40 and 51. Therefore a new ground of rejection is applied.

***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 13 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 12 and 23 of copending Application No. 10/657,468. Although the conflicting claims are not identical, they are not patentably distinct from each other. As can be seen from the table below, instant claims and the claims of copending application are directed to the same subject matter of the invention. For example,

<b>Instant Application</b> 10/657,463	<b>Copending Application</b> 10/657,468
<u>Claim 1.</u> <b>A method of generating common intermediate language code comprising:</b>  receiving a portion of JAVA.TM. language source code referencing a first class	<u>Claim 1.</u> <b>A method of generating common intermediate language code comprising:</b>  writing first object oriented language source code that comprises a definition of

having a definition that is uniformly applicable to a plurality of classes associated with the first class, the source code identifying one of the plurality of associated classes, a definition of the first class being provided in a network using a first programming language other than JAVA.TM language; and

generating **language-neutral intermediate language code** representing the portion of JAVA language source code based on the portion of JAVA.TM language source code and the first class provided in the first programming language other than JAVA.TM language, wherein the language-neutral intermediate language code is generated at least from JAVA.TM language and the first programming language.

a generic class usable in a framework, the first object oriented language source code being associated with a framework developed for use with a predetermined object oriented programming language that compiles source code into non-language-neutral bytecodes; and

compiling the instance of the generic class into **common intermediate language code** executable by a runtime engine.

Claim 13.

A method of compiling comprising:

**receiving a portion of JAVA.TM. language** software having a declaration of an instance of a generic class, wherein the declared instance of the generic class is provided using a programming language other than JAVA.TM language; parsing the declaration into a token corresponding to the generic class; and

Claim 12.

A method of using a generic class comprising:

**adapting existing object oriented language source code**, the existing object oriented language source code being associated with a framework developed for use with a predetermined object oriented programming language that compiles source code into non-language-neutral bytecodes, to include a declaration of a first generic class provided by a software package having a class definition of the first generic class; and

<p><b>creating an intermediate language code</b> block corresponding to the parsed declaration, the intermediate language code block is generated based on the portion of JAVA language and instance of the generic class developed in the programming language other than JAVA language and is made executable by a runtime engine.</p>	<p>compiling the adapted existing object oriented language source code with the class definition to <b>generate common intermediate language code</b></p>
<p><u>Claim 18.</u> A computer-readable medium having stored thereon computer-executable instructions for performing a method of compiling comprising:</p> <p><b>receiving a portion of JAVA.TM. language</b> software including an instruction that references a <b>generic class</b> of a specified type, wherein the referenced generic class is provided using a programming language other than JAVA language;</p> <p><b>creating a parse tree having a generic class identifier associated with the generic class</b> and type identifier associated with the specified type; and generating one or more <b>intermediate language instructions</b> representing the JAVA.TM. M language instruction based on the parse tree based on the portion of JAVA language source code and the referenced generic class provided in the programming language other than JAVA language.</p>	<p><u>Claim 23.</u> A computer-readable medium having stored thereon microprocessor-executable instructions for performing a method comprising:</p> <p><b>receiving input representing a generic class definition in a JAVA.TM. language</b>, the first object oriented language being associated with a framework developed for use with a predetermined object oriented programming language that compiles source code into non-language-neutral bytecodes; receiving a second, different object oriented language defined by the first object oriented language source code; and</p> <p><b>compiling the source code with an instance of the generic class</b> into common intermediate language code executable by a runtime engine.</p>

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-9, 13-30, 36-45 and 50-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Hostetter (Hostetter et al., US 2005/0060695 A1) in view of Getov (Getov et al., "High-performance parallel programming in Java exploiting native libraries")

Claim 1:

Hostetter discloses a method of generating common intermediate language code comprising:

- receiving a portion of JAVA.TM. language source code referencing a first class having a definition that is uniformly applicable to a plurality of classes associated with the first class, the source code identifying one of the plurality of associated classes (see for example, Fig.5, step 2020 "Read Instruction



From Program Code” and related text; also see p.2, [0016]-[0017], “Java programming language”, “template generated class”); and

- generating language-neutral intermediate language code representing the portion of source code. (see for example, Fig.5, step 2045, 2075, “Compile” and related text).

But does not explicitly disclose a definition of the first class being provided in a network using a first programming language other than JAVA.TM language and generating language-neutral intermediate language code representing the portion of source code from JAVA. language and the first programming language.

However, Getov in the same analogous art of programming in Java, discloses Java code can use high performance classes (libraries) written in other language (see for example, p.1, SUMMARY, “in this paper we discuss how new Java programs can capitalize on high-performance libraries for other language” and related descriptions). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use/reference the other classes/libraries in a programming language (Fortran, C) other than Java language. It also would have been obvious in the computer art that said libraries/class can be saved remotely and called/referenced through a network. One would have been motivated to do so to enable high-performance computation in Java by reference existing native libraries in other programming language.

Claim 2:

Hostetter further discloses a method as recited in claim 1, comprising parsing the portion of the source code into a parse tree representing the source code before compiling the portion with the first class (see for example, Fig.5, step 2045, 2075, "Compile" and related text; also see p.2, [0024], [0026], "The runtime compiler is invoked...").

Claim 3:

Hostetter also discloses a method as recited in claim 2 further comprising nesting a constructed class of the first class in the parse tree (see for example, p.2, [0022] "(2) creating a representation of the template-generated class...").

Claim 4:

Hostetter further discloses a method as recited in claim 1 further comprising:

- generating a parse tree having a token referencing the first class and a token referencing the specified one of the plurality of associated classes (see for example, Fig.5, step 2045, 2075, "Compile"; also see p.2 [0024]); and
- semantically analyzing the parse tree to determine validity of semantics of the first class (see for example, Fig.5, step 2085, "Compiler Error"; also see, p.6, [0090], "the compiler notifies the software programmer or end user of the compilation error...").

Claim 5:

Hostetter also discloses a method as recited in claim 4 wherein the semantically analyzing comprises determining whether operations applied to the first class are valid (see for example, Fig.5, step 2085, "Compiler Error"; also see, p.6, [0090], "the compiler notifies the software programmer or end user of the compilation error...").

Claim 6:

Hostetter further discloses a method as recited in claim 1 further comprising generating metadata descriptive of the first class (see for example, Fig.2, step 1020, "Create Method Bindings for Class Representation" and related text; also see p.4, [0055], "A method binding is an object that stores information about a class method").

Claim 7:

Hostetter also discloses a method as recited in claim 6 further comprising storing the metadata with the language-neutral intermediate language code, whereby the language-neutral intermediate language code is used by an application program (see for example, Fig.2, step 1010, "Create object Representation of Template-Generated Class" and related text; also see, p.4, [0053], "template representation").

Claim 8:

Hostetter further discloses a method as recited in claim 1 further comprising creating a compiled project (see for example, Fig.2, step 1020, 1030, "Compile"; also see p.4, [0054], "compilation") including the language-neutral intermediate language code (see for example, Fig.2, step 1010, "Create object Representation of Template-Generated Class" and related text; also see, p.4, [0053], "template representation") and metadata descriptive of the first class and the specified one of the plurality of associated classes (see for example, Fig.2, step 1020, "Create Method Bindings for Class Representation" and related text; also see p.4, [0055], "A method binding is an object that stores information about a class method").

Claim 9:

Hostetter further discloses a method as recited in claim 1 further comprising executing the language-neutral intermediate language code with a runtime engine (see for example, p.4, [0054], "executable code").

Claim 13:

Hostetter discloses a method of compiling comprising:

- receiving a portion of JAVA.TM. language software having a declaration of an instance of a generic class (see for example, p.2, [0016], "add class

templates to the Java programming language"; p.2, [0018], "creating a representation of the class template");

- parsing the declaration into a token corresponding to the generic class (see for example, p.2, [0024] "requires compilation"); and
- creating an intermediate language code block corresponding to the parsed declaration, wherein the intermediate language code block is executable by a runtime engine (see for example, p.3, [0051] "some type of intermediate code").

But does not explicitly disclose the declared instance of the generic class is provided using a programming language other than JAVA language and generated based on the portion of JAVA language and the instance of the generic class developed in the programming language other than JAVA language. However, Getov in the same analogous art of programming in Java, discloses Java code can use high performance classes (libraries) written in other language (see for example, p.863, SUMMARY, "in this paper we discuss how new Java programs can capitalize on high-performance libraries for other language" and related descriptions). Getov also discloses a method of binding of native library to Java suing dynamically linking the library to the Java virtual machine or linking the library to the object code produced by a stand-alone Java compiler (see for example, p.864, section 2. "Creating Native Library Wrappers" and related text) .Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use/reference the other

classes/libraries in a programming language (Fortran, C) other than Java language and generate executable code based libraries and Java language. One would have been motivated to do so to enable high-performance computation in Java by reference existing native libraries in other programming language.

Claim 14:

Hostetter discloses a method as recited in claim 13 further comprising associating the declaration of the instance of the generic class with a defined generic class in a generic class library (see for example, p.5, [0069], "The ClassTemplate provides source code representations"; also see p.5, [0071], "When the compiler encounters in the program code a variable declaration in which the declared type is a template-generated class").

Claim 15:

Hostetter also discloses a method as recited in claim 14 further comprising tokenizing a parse tree with an identifier corresponding to the defined generic class, the parse tree comprising a hierarchical representation of the declaration (see for example, Fig.4B, element 222 "identifier"; also see p.5, [0077]).

Claim 16:

Hostetter discloses a method as recited in claim 13 further comprising creating metadata describing the portion of the JAVA.TM. language software (see for example, p.4, [0055], "A method binding is an object that stores information about a class method").

Claim 17:

Hostetter discloses a method as recited in claim 14 further comprising validating an operation on the instance of the generic class based on the defined generic class (see for example, Fig.5, step 2085, "Compiler Error"; also see, p.6, [0090], "the compiler notifies the software programmer or end user of the compilation error...").

Claim 36:

Hostetter discloses a method of generating microprocessor-executable code comprising:

- receiving a portion of source code written in a language for which generic classes are unspecified, the portion of source code including a generic class declaration declaring a generic class, the generic class declaration including at least one associated class reference defining a constructed class of the generic class (see for example, p.2, [0016], "add class templates to the Java programming language"; p.2, [0018], "creating a representation of the class template"); and

- generating a module having microprocessor-executable instructions corresponding to the constructed class, (see for example, p.4, [0054], "executable code"), the module further having metadata describing the constructed class (see for example, p.4, [0055], "A method binding is an object that stores information about a class method").

But does not explicitly disclose the declared instance of the generic class is provided using a programming language other than JAVA language and generated based on the portion of JAVA language and the instance of the generic class developed in the programming language other than JAVA language. However, Getov in the same analogous art of programming in Java, discloses Java code can use high performance classes (libraries) written in other language (see for example, p.863, SUMMARY, "in this paper we discuss how new Java programs can capitalize on high-performance libraries for other language" and related descriptions). Getov also discloses a method of binding of native library to Java suing dynamically linking the library to the Java virtual machine or linking the library to the object code produced by a stand-alone Java compiler (see for example, p.864, section 2. "Creating Native Library Wrappers" and related text) .Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use/reference the other classes/libraries in a programming language (Fortran, C) other than Java language and generate executable code based libraries and Java language. One would have been motivated to do so to enable high-performance



computation in Java by reference existing native libraries in other programming language.

Claim 37:

Hostetter further discloses a method as recited in claim 36 wherein the microprocessor-executable instructions comprise intermediate language instructions (see for example, .p.3, [0051] "some type of intermediate code").

Claim 38:

Hostetter also discloses a method as recited in claim 36 wherein the microprocessor-executable instructions comprise Microsoft.TM. Intermediate Language instructions (see for example, .p.3, [0051] "some type of intermediate code").

Claim 39:

Hostetter also discloses a method as recited in claim 36 wherein the metadata comprises at least one of:

- method information indicating one or more methods implemented by the constructed class (see for example, p.4, [0055], "A method binding is an object that stores information about a class method");

Claim 40:

Hostetter discloses a method of compiling comprising:

- receiving a portion of source code written in a language for which generic classes are unspecified in a formal language specification, the portion of source code including a first class reference having at least one associated class reference referencing a class associated with the first class (see for example, Fig.5, step 2020 "Read Instruction From Program Code" and related text; also see p.2, [0016]-[0017], "Java programming language", "template generated class"); and
- generating an intermediate language representation of the portion of source code, the intermediate representation having an instance of the first class and an instance of the at least one associated class (see for example, Fig.5, step 2045, 2075, "Compile" and related text; also see p.5, [0071], "template-generated class representation, an object representation of the template-generated class in memory").

But does not explicitly disclose the first class being provided using a second programming language other than JAVA.TM language and generating language-neutral intermediate language code representing the portion of source code from JAVA. language and the first programming language. However, Getov in the same analogous art of programming in Java, discloses Java code can use high performance classes (libraries) written in other language (see for example, p.1, SUMMARY, "in this paper we discuss how new Java programs can capitalize on

high-performance libraries for other language" and related descriptions).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use/reference the other classes/libraries in a programming language (Fortran, C) other than Java language. It also would have been obvious in the computer art that said libraries/class can be saved remotely and called/referenced through a network. One would have been motivated to do so to enable high-performance computation in Java by reference existing native libraries in other programming language.

Claim 41:

Hostetter further discloses a method as recited in claim 40 wherein the first class is a generic class (see for example, Fig.2, step 1000, "Create Object Representation of Class Template").

Claim 42:

Hostetter also discloses a method as recited in claim 40 wherein the language is a JAVA.TM. language (see for example, p.2, [0016], "java programming language").

Claim 43:

Hostetter also discloses a method as recited in claim 40 further comprising validating the type based on a definition of the first class (see for example, Fig.5,

step 2085, "Compiler Error"; also see, p.6, [0090], "the compiler notifies the software programmer or end user of the compilation error...").

Claim 44:

Hostetter discloses a method as recited in claim 43 further comprising validating an operation on the first class based on a definition of the first class (see for example, Fig.5, step 2085, "Compiler Error"; also see, p.6, [0090], "the compiler notifies the software programmer or end user of the compilation error...").

Claim 45:

Hostetter also discloses a method as recited in claim 40 further comprising interpreting the intermediate representation for execution by a microprocessor (see for example, p.3, [0051] "some type of intermediate code"; also see p.4, [0054], "executable code").

Claim 50:

Hostetter further discloses a method as recited in claim 40 wherein the at least one associated class reference includes one or more nested generic class references (see for example, p.6, [0099] "other classes or class templates are inherited").

Claims 18-24:

Claims 18-24 are a computer product version of claimed method as discussed in claim 1-9 above, wherein all claimed limitations have been address and/or set forth in claims 1-9. It is well known in the computer art that claimed method can be stored and/or exercised on the computer-readable medium. Therefore, as the references teach all the limitation of claims 1-9, they also teach the limitations of claims 18-24. Thus, they also would have been obvious.

Claims 25-30:

Claims 25-30 are a computer product version of claimed method as discussed in claims 40-50 above, wherein all claimed limitations have been address and/or set forth in claims 40-50. It is well known in the computer art that claimed methods could be stored and/or exercised on the computer-readable medium. Therefore, as the references teach all the limitation of claims 40-50, they also teach the limitations of claims 40-50. Thus, they also would have been obvious.

Claims 51-54:

Claims 51-54 are a system version of claimed methods as discussed in claims 40-5- above, wherein all claimed limitations have been address and/or set forth in claims 40-50. Therefore, as the references teach all the limitation of claims 40-50, they also teach the limitations of claims 40-50. Thus, they also would have been obvious.

13. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hostetter (Hostetter et al., US 2005/0060695 A1) in view of Getov (Getov et al., "High-performance parallel programming in Java exploiting native libraries") and in further view of Lurie (Johnthan Lurie, Product Snapshot: J#, J# provides Java develops a key for entering the .Net platform).

Claims 11-12:

Hostetter and Getov disclose a method as recited in claim 1 wherein the framework, but does not explicitly disclose the framework is a .NET.TM.

Framework. However, Lurie in the same analogous art of Java programming discloses Visual J#.Net Framework (see for example, p.1, first paragraph, "Visual J#.Net is Microsoft's Java development tool for the .Net Framework") Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use Visual J# to implement/perform above method is claim 10. One would have been motivated to do so to take advantage of rich APIs offered by the .Net Framework to perform similar tasks as suggested by Lurie (see for example, p.1, third paragraph)

14. Claims 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hostetter (Hostetter et al., US 2005/0060695 A1) in view of Getov (Getov et al., "High-performance parallel programming in Java exploiting native libraries") and

in view of APA (Admitted Prior Art, BACKGROUND section of the specification, [0003]-[0005])

Claim 31:

Hostetter discloses a method for compiling comprising:

- receiving a portion of source code in a Java language having a declaration of an instance of a generic class (see for example, p.2, [0016], “add class templates to the Java programming language”; p.2, [0018], “creating a representation of the class template”);
- parsing the portion into a parse tree having an instance of a first type having at least one instance of an associated type (see for example, p.2, [0024] “requires compilation”); and
- generating an intermediate representation of the parse tree representing the source code in the first programming language and the instance of the associated type using the second programming language (see for example, p.3, [0051] “some type of intermediate code”).

But does not explicitly disclose the generic class is .NET generic type are not specified in a formal definition of the first programming language, wherein the specified generic types are provided using a second programming language other than the first programming language. However, APA discloses that formal specifications for some languages, such as Java language, do not specify generic classes and .Net may provide generic class in framework (see for example, p.1, [0005]). Getov in the same analogous art of programming in Java,

also discloses Java code can use high performance classes (libraries) written in other language (see for example, p.1, SUMMARY, "in this paper we discuss how new Java programs can capitalize on high-performance libraries for other language" and related descriptions). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use and compile .Net generic class in Hostetter's teachings. One would have been motivated to do so to take full advantage of the .Net Framework to perform similar tasks as suggested by APA (see for example, p.1, [0005]) and to enable high-performance computation in Java by reference existing native libraries in other programming language.

Claim 32:

Hostetter further discloses the method of claim 31 also comprising importing metadata describing the first class and the at least one instance of the associated class (see for example, p.4, [0055], "A method binding is an object that stores information about a class method").

Claim 33:

Hostetter also discloses the method as recited in claim 31 further comprising tokenizing the parse tree with a token corresponding to the generic type (see for example, p.2, [0024] "The process for generating method bindings...").



Claim 34:

Hostetter also discloses the method as recited in claim 33 further comprising tokenizing the parse tree with at least one token corresponding to the at least one instance of the associated type (see for example, p.2, [0024] "The process for generating method bindings...")

Claim 35:

APA further discloses the method as recited in claim 31 wherein the generic type is a NET.TM. generic class (see for example, APA , p.1, [0005]).

15. Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hostetter (Hostetter et al., US 2005/0060695 A1) in view of Getov (Getov et al., "High-performance parallel programming in Java exploiting native libraries") and in view of Allen (Eric Allen Diagnosing Java code: Java generics without the pain, part1, part2)

Claim 46:

Hostetter discloses a method as recited in claim 40, but does not explicitly disclose angular brackets surround the at least one associated class reference. However, Allen in the same analogous art of Java generics discloses the angular brackets surround the at least one associated class reference (see for example, p.3, example code with "<>"). It is well known in the computer art that angular

bracket is used to define template or generics class.

Claim 47:

Hostetter discloses a method as recited in claim 40 and also disclose a linked list (see for example, p.5, [0075], bindings are stored in the ClassObject as elements of a linked list), but does not explicitly disclose the first class is a Queue class. However, it is well known in the computer art that Queue class is included in the .Net Class library to represents a first-in, first-out collection of objects. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use queue class to implement. One would have been motivated to do so to implement the bindings using framework provided existing queue class.

Claims 48-49:

Hostetter discloses a method as recited in claim 47, but does not explicitly disclose at least one associated class comprises at least one of:

- an int type; a string type; and a Queue type.

However, Allen in the same analogous art of Java generics discloses generic types (see for example, p.2-3, section "Generic types to the rescue", Listing4. "Referencing type parameters like ordinary types and example code <string>, <integer>). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use generic types to define generic

class. One would have been motivated to do so to eliminate casts as suggested by Allen (see for example, p.2, section "Generic types to the rescue", a natural way to eliminate casts like the one above is to argument the Java type system").

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zheng Wei whose telephone number is (571) 270-1059 and Fax number is (571) 270-2059. The examiner can normally be reached on Monday-Thursday 8:00-15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZW



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SUPERVISORY PATENT EXAMINER